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For: Multimeter with Non-Contact Temperature Measurement

CLAIMS

1. A multimeter with non-contact temperature measurement capability, comprising:

a multimeter contained in a housing and having outputs relating to measured electrical parameters;

an output display contained in the housing, for displaying results to a user;

a non-contact optically-based temperature sensing device coupled to the housing, having an output related to sensed temperature; and

circuitry contained in the housing for processing both the multimeter outputs and the temperature sensing device output, and transmitting the processed output to the output display.

2. The multimeter with non-contact temperature measurement capability of claim 1 in which the multimeter is a digital multimeter.

3. The multimeter with non-contact temperature measurement capability of claim 1 in which the temperature sensing device comprises an infrared sensor.

4. The multimeter with non-contact temperature measurement capability of claim 3 in which the temperature sensing device further comprises a lens, proximate the infrared sensor, for focusing entering radiation and protecting the infrared sensor.

5. The multimeter with non-contact temperature measurement capability of claim 1 in which the temperature sensing device defines a sense axis that is fixed relative to the housing.

6. The multimeter with non-contact temperature measurement capability of claim 1 in which the temperature sensing device defines a sense axis that is adjustable relative to the housing.

7. The multimeter with non-contact temperature measurement capability of claim 6 in which the temperature sensing device is mounted in a mount that is coupled to and movable relative to the housing, to allow the user to aim the temperature sensing device.

8. The multimeter with non-contact temperature measurement capability of claim 7 in which the temperature sensing device mount is rotatably coupled to the housing.

9. The multimeter with non-contact temperature measurement capability of claim 1 further comprising an optical aiming device coupled to the housing, to assist the user in aiming the temperature sensing device at an object whose temperature is to be measured.

10. The multimeter with non-contact temperature measurement capability of claim 9 in which the optical aiming device defines an aiming axis that is adjustable relative to the housing.

11. The multimeter with non-contact temperature measurement capability of claim 10 in which the optical aiming device is mounted in a mount that is coupled to and movable relative to the housing, to allow the user to aim the optical aiming device.

12. The multimeter with non-contact temperature measurement capability of claim 11 in which the optical aiming device mount is rotatably coupled to the housing.

13. The multimeter with non-contact temperature measurement capability of claim 9 in which the optical aiming device comprises a diode laser device.

14. The multimeter with non-contact temperature measurement capability of claim 1 further comprising a switch for switching at least some of the circuitry between the multimeter outputs and the temperature sensing device output.

15. The multimeter with non-contact temperature measurement capability of claim 1 further comprising a user-operable electrical device for selectively routing the temperature sensing device output to the circuitry.

16. The multimeter with non-contact temperature measurement capability of claim 1 further comprising a user-operable electrical device for selectively holding the sensed temperature.

17. The multimeter with non-contact temperature measurement capability of claim 1 in which the circuitry determines the sensed temperature based on the output of the temperature sensing device using a fixed emissivity.

18. The multimeter with non-contact temperature measurement capability of claim 17 in which the fixed emissivity is less than one.

19. A digital multimeter with non-contact temperature measurement capability, comprising:

a digital multimeter contained in a housing and having outputs relating to measured electrical parameters;

a digital output display contained in the housing, for displaying results to a user;

a non-contact infrared temperature sensing device within the housing, having an output related to sensed temperature; and

circuitry contained in the housing for processing both the multimeter outputs and the temperature sensing device output, and transmitting the processed output to the output display.

20. The multimeter with non-contact temperature measurement capability of claim 19 in which the temperature sensing device defines a sense axis that is adjustable relative to the housing.

21. The multimeter with non-contact temperature measurement capability of claim 20 in which the temperature sensing device is mounted in a mount that is coupled to and movable relative to the housing, to allow the user to aim the temperature sensing device.

22. The multimeter with non-contact temperature measurement capability of claim 21 in which the temperature sensing device mount is rotatably coupled to the housing.

23. The multimeter with non-contact temperature measurement capability of claim 19 further comprising an optical aiming device coupled to the housing, to assist the user in aiming the temperature sensing device at an object whose temperature is to be measured.

24. The multimeter with non-contact temperature measurement capability of claim 23 in which the optical aiming device defines an aiming axis that is adjustable relative to the housing.

25. The multimeter with non-contact temperature measurement capability of claim 24 in which the optical aiming device is mounted in a mount that is coupled to and movable relative to the housing, to allow the user to aim the optical aiming device.

26. The multimeter with non-contact temperature measurement capability of claim 25 in which the optical aiming device mount is rotatably coupled to the housing.

27. The multimeter with non-contact temperature measurement capability of claim 19 in which the circuitry determines the sensed temperature based on the output of the temperature sensing device using a fixed emissivity.

28. The multimeter with non-contact temperature measurement capability of claim 27 in which the fixed emissivity is less than one.